

**PERMIT APPLICATION REVIEW
COVERED SOURCE PERMIT NO. 0406-01-CT
Application for Renewal No. 0406-07**

Company: Maui Paving, LLC

Mailing Address: P.O. Box 78
Honolulu, Hawaii 96810

Facility: Sixty (60) TPH Portable Drum Mix Asphalt Concrete Plant

Location: Various Temporary Sites, State of Hawaii

Initial Location: 26 Ulili Street, Kalamaula Industrial Park, Kaunakakai, Molokai

SIC Code: 2951 (Asphalt Paving Mixtures and Blocks)

Responsible Official: Mr. Darrell Goo
Senior Vice President, Construction
Ph: (808) 845-3991

Site Contact: Mr. Joseph Shacat
Environmental Compliance Manager
Ph: (808) 674-8383

Consultant: Scott Sevadjian
Arcadis US, Inc.
Ph: (808) 522-0365

BACKGROUND

Maui Paving has submitted an application to renew its covered source permit no. 0406-01-CT, that was issued on October 9, 2009. The facility consists of one (1) sixty (60) ton per hour (TPH) portable asphalt drum mixer/dryer and one 209 kW diesel engine generator (DEG). Existing permit conditions limit operation of the drum mixer/dry to ten (10) hours per day and the 209 kW DEG has no operation limits.

There are no modifications proposed to existing equipment in the design or operation of the facility.

EQUIPMENT DESCRIPTION

Equipment Description	Capacity	Fuel Usage
Asphalt Drum Mixers, Inc. drum mixer/dryer model no. SPL-5424, serial no. SPL5424238-91	60 tons/hr	
Hauck burner	23 MMBtu/hr	164 gallons/hr fuel oil no. 2
Cummins diesel engine generator, model no. 230DSHAD, manufactured in 2009	209 kW (prime rating), 60 Hz	17 gallons/hr fuel oil no. 2
Storage silo	40 tons	n/a
Aggregate storage piles	n/a	n/a
Conveyors	n/a	n/a

AIR POLLUTION CONTROLS

Wet Scrubber

The drum mixer/dryer is equipped with a variable throat, venturi style wet scrubber for the control of particulate matter.

Water Suppression

Fugitive emissions due to storage piles and truck travelling on unpaved roads will be controlled by water suppression. Water suppression is assumed to be seventy percent (70%) efficient.

APPLICABLE REQUIREMENTS

Hawaii Administrative Rules (HAR)

Title 11 Chapter 59, Ambient Air Quality Standards

Title 11 Chapter 60.1, Air Pollution Control

Subchapter 1, General Requirements

Subchapter 2, General Prohibitions

11-60.1-31, Applicability

11-60.1-32, Visible Emissions

11-60.1-33, Fugitive Dust

11-60.1-38, Sulfur Oxides from Fuel Combustion

Subchapter 5, Covered Sources

Subchapter 6, Fees for Covered Sources, Noncovered Sources, and Agricultural Burning

11-60.1-111, Definitions

11-60.1-112, General Fee Provisions for Covered sources

11-60.1-113, Application Fees for Covered sources

11-60.1-114, Annual Fees for Covered sources

11-60.1-115, Basis of Annual Fees for Covered Sources

Subchapter 8, Standards of Performance for Stationary Sources

11-60.1-161, New Source Performance Standards

11-60.1-161 (1), Subpart A, General Provisions

11-60.1-161 (11), Subpart I, Standards of Performance for Hot Mix Asphalt Facilities

Subchapter 9, Hazardous Air Pollutant Sources

Subchapter 10, Field Citations

Standards of Performance for New Stationary Sources (NSPS), 40 CFR Part 60

Subpart I, *Standards of Performance for Hot Mix Asphalt Facilities* is applicable to the sixty (60) TPH portable asphalt drum mixer/dryer because the facility commenced construction or modification after June 11, 1973.

Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* is applicable to the 209 kW DEG because the engine commenced construction after July 11, 2005, and was manufactured after April 1, 2006. For purposes of Subpart IIII, the date that construction commences is the date the engine is ordered. Manufacturer's specifications indicate the generator is EPA Tier 3 certified.

National Emission Standards for Hazardous Air Pollutants (NESHAPs), 40 CFR Part 61

This source is not subject to NESHAPs because there are no standards in 40 CFR Part 61 applicable to this facility.

National Emission Standards for Hazardous Air Pollutants for Source Categories (Maximum Achievable Control Technology (MACT)), 40 CFR Part 63

Subpart ZZZZ, *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)* is applicable to the 209 kW DEG because the engine is a new stationary RICE. A stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary rice on or after June 12, 2006. A new stationary RICE located at an area source must meet the requirements of this part by meeting the requirements of 40 CFR Part 60, Subpart IIII. No further requirements apply for such engines under this part.

Prevention of Significant Deterioration (PSD), 40 CFR Part 52, §52.21

This source is not subject to PSD requirements because it is not a major stationary source as defined in 40 CFR §52.21 and HAR Title 11, Chapter 60.1, Subchapter 7.

Compliance Assurance Monitoring (CAM), 40 CFR 64

This source is not subject to CAM since the facility is not a major source. The purpose of CAM is to provide a reasonable assurance that compliance is being achieved with large emissions units that rely on air pollution control device equipment to meet an emissions limit or standard. Pursuant to 40 CFR Part 64, for CAM to be applicable, the emissions unit must: (1) be located at a major source; (2) be subject to an emissions limit or standard; (3) use a control device to achieve compliance; (4) have potential pre-control emissions that are 100% of the major source level; and (5) not otherwise be exempt from CAM.

Air Emissions Reporting Requirements (AERR), 40 CFR Part 51, Subpart A

AERR is not applicable because potential emissions from the facility do not exceed the AERR triggering levels (see table below).

Pollutant	Total Emissions (TPY) [3,650 hr/yr]	AERR Triggering Levels (TPY)	
		1 year cycle (type A sources)	3 year cycle (type B sources)
CO	15.36	2500	1000
NO _x	17.30	2500	100
SO ₂	10.64	2500	100
PM	12.26	-	-
PM ₁₀	14.62	250	100
PM _{2.5}	5.45	250	100
VOC	5.42	250	100
Lead (Pb)	0.002	-	0.5
HAPs	1.03	-	-

Department of Health (DOH) In-house Annual Emissions Reporting

The Clean Air Branch requests annual emissions reporting from those facilities that have facility-wide emissions exceeding in-house reporting levels and for all covered sources. This facility is subject to annual emissions reporting requirements as a covered source.

Best Available Control Technology (BACT)

A BACT analysis is required for new sources or modifications to sources that have the potential to emit or increase emissions above significant levels considering any limitations as defined in HAR, Section 11-60.1-1. This source is not subject to a BACT analysis because there are no proposed modifications.

Synthetic Minor Source

A synthetic minor source is a facility that is potentially major as defined in HAR 11-60.1-1, but is made non-major through federally enforceable permit conditions. This facility is not a synthetic minor source because potential emissions do not exceed major source thresholds when the facility is operated without limitations for 8,760 hours/year.

INSIGNIFICANT ACTIVITIES

Asphalt Cement Heated Tank

The asphalt heater is Model HSPO-15P, is fired on 5.7 gallons/hour of fuel oil no. 2 maximum and has a heat input capacity of 0.78 MMBtu/hour. It is considered insignificant in accordance with HAR 11-60.1-82(f)(2).

Emissions are estimated based on emission factors from AP-42 Section 11.1 (3/04) – *Hot Mix Asphalt Plants*.

Asphalt Heater	
Pollutant	Emissions (TPY) [8,760 hr/yr]
CO	0.03
HAPs	0.00066

Storage Tanks

The following storage tanks are considered insignificant activities in accordance with HAR §11-60.1-82(f)(1) because their capacities are less than 40,000 gallons:

1. One (1) 250-gallon diesel fuel tank;

2. One (1) 4,000 -gallon diesel fuel tank;
2. One (1) 2,000-gallon mobile tank (empty, not in use); and
3. One (1) 58-gallon propane fuel tank.

Facility emissions are below major source levels when taking into consideration both permitted and insignificant activities. This is based on operation of the diesel engine generator for 8,760 hours per year and the drum mixer/dryer for ten (10) hours per day, 365 days per year.

ALTERNATIVE OPERATING SCENERIOS

Diesel Engine

The permittee may replace the 209 kW DEG with a temporary replacement unit of similar size with equal or lesser emissions if any repair reasonably warrants the removal of the DEG from operation (i.e., equipment failure, engine overhaul, or any major equipment problems requiring maintenance for efficient operation).

PROJECT EMISSIONS

Emissions from Drum Mixer/Dryer

Emissions are based on the maximum capacity of the drum mixer to process 60 TPH of HMA with an operational limitation of ten (10) hours per day, 365 days per year. CO, NO_x, PM, VOC, and HAPs emissions are determined with emission factors from AP-42 Section 11.1 (3/04) – *Hot Mix Asphalt Plants* for fuel oil no. 2. Assume total PM = PM₁₀ = PM_{2.5}. SO₂ emission is calculated based on AP-42 Section 1.3 (5/10) - *Fuel Oil Combustion* for fuel oil no. 2 and Table 11.1-7 footnote c.

Drum Mixer		
Pollutant	Emissions (TPY)	
	3,650 hr/yr	8,760 hr/yr
CO	14.2	34.2
NO _x	6.0	14.5
SO ₂	10.6	25.5
PM	4.9	11.8
PM ₁₀	4.9	11.8
PM _{2.5}	4.9	11.8
VOC	3.5	8.4
Lead (Pb)	1.6E-03	3.9E-03
HAPs	0.96	2.31

Diesel Engine Generator

The diesel engine generator is fired on fuel oil no. 2 with a maximum sulfur content of 0.0015% by weight. A mass balance calculation is used to determine SO₂ emission. CO, NO_x, PM, and TOC emissions are based on manufacturer's data. Assume PM₁₀ = 96% of PM and PM_{2.5} = 90% PM based on particle size distribution data from AP-42 Appendix B.2 (01/95). HAP emissions are based on emission factors from AP-42 Section 3.3 (10/96) – *Gasoline and Diesel Industrial Engines*.

209 kW DEG	
Pollutant	Emissions (TPY)
	8,760 hr/yr
CO	0.85
NO _x	11.27
SO ₂	0.016
PM	0.16
PM ₁₀	0.15
PM _{2.5}	0.14
TOC	0.16
Lead (Pb)	-
HAPs	0.04

HMA Silo Filling and Load-Out Operations

Emissions from HMA silo filling and truck load-out operations are estimated using emission factors from AP-42, Section 11.1 (03/04) – *Hot Mix Asphalt Plants*. Assume PM = PM₁₀ = PM_{2.5} according to AP-42 Table 11.1-14 footnote b.

HMA Silo Filling		
Pollutant	Emissions (TPY)	
	3,650 hr/yr	8,760 hr/yr
CO	0.13	0.31
NO _x	-	-
SO ₂	-	-
PM	0.06	0.15
PM ₁₀	0.06	0.15
PM _{2.5}	0.06	0.15
TOC	1.33	3.20
Lead (Pb)	-	-
HAPs	0.02	0.05

HMA Truck Load-out		
Pollutant	Emissions (TPY)	
	3,650 hr/yr	8,760 hr/yr
CO	0.15	0.35
NO _x	-	-
SO ₂	-	-
PM	0.06	0.14
PM ₁₀	0.06	0.14
PM _{2.5}	0.06	0.14
TOC	0.43	1.03
Lead (Pb)	-	-
HAPs	0.01	0.02

Fugitive Emissions

Emissions due to aggregate handling, wind erosion from storage piles, and truck travelling on unpaved roads are summarized in the tables below. Aggregate handling includes truck loading aggregate to bins and conveyor transfer points. Seventy percent (70%) control efficiency is assumed for water suppression. Emissions were based on emission factors from AP-42 Section 11.19.2 (8/04) – *Crushed Stone Processing and Pulverized Mineral Processing*, Section

13.2.4 (11/06) – *Aggregate Handling and Storage Piles*, and Section 13.2.2 (11/06) – *Unpaved Roads*. Particulate emissions are estimated using AP-42, Section 11.19.2 (8/04) – *Crushed Stone Processing and Pulverized Mineral Processing*.

Aggregate Handling		
Pollutant	Emissions (TPY)	
	3,650 hr/yr	8,760 hr/yr
PM	0.59	1.42
PM ₁₀	0.22	0.52
PM _{2.5}	0.09	0.21

Wind Erosion from Storage Piles		
Pollutant	Emissions (TPY)	
	3,650 hr/yr	8,760 hr/yr
PM	2.2	
PM ₁₀	1.1	
PM _{2.5}	0.2	

Truck Travelling on Paved Roads		
Pollutant	Emissions (TPY)	
	3,650 hr/yr	8,760 hr/yr
PM	4.2	10.1
PM ₁₀	1.2	3.0
PM _{2.5}	0.1	0.3

Total Facility Emissions

Facility-wide emissions are summarized in the table below.

Pollutant	Total Emissions (TPY)	
	3,650 hr/yr	8,760 hr/yr
CO	15.36	35.67
NO _x	17.30	25.73
SO ₂	10.64	25.52
PM	12.26	26.07
PM ₁₀	7.72	16.84
PM _{2.5}	5.45	12.93
VOC	5.42	12.80
Lead (Pb)	0.002	0.004
HAPs	1.03	2.43

Greenhouse Gas (GHG) Emissions

Total GHG emissions on a CO₂ equivalent (CO₂e) basis using the global warming potential (GWP) of the GHG are summarized in the table below.

GHG	GWP	GHG CO ₂ e Based Emissions (TPY)	
		3,650 hr/yr	8,760 hr/yr
Carbon Dioxide (CO ₂)	1	5,323.10	12,285.90
Methane (CH ₄)	25	35.47	82.72
Nitrous Oxide (N ₂ O)	298	20.63	43.75
Total Emissions		5,379.20	12,412.37

AMBIENT AIR QUALITY ASSESSMENT

An ambient air quality assessment (AAQA) is generally required for new or modified sources to demonstrate compliance with State and National ambient air quality standards. An AAQA is not required for this permit renewal because there are no modifications proposed.

SIGNIFICANT PERMIT CONDITIONS

1. Drum Mixer/Dryer

- a. The drum mixer shall be fired only on fuel oil no. 2 with a maximum sulfur content not to exceed 0.5% by weight.

Reason: Fuel types proposed by the applicant.

- b. The total daily operating hours of the drum mixer/dryer shall not exceed ten (10) hours per day.

Reason: Carried over from the previous permit.

- c. The permittee shall not discharge or cause the discharge into the atmosphere from the baghouse servicing the drum mixer/dryer, particulate matter in excess of ninety (90) mg/dscm (0.04 gr/dscf).

Reason: 40 CFR 60, Subpart I, particulate matter limit.

2. Diesel Engine Generator

- a. The diesel engine generator shall be fired only on ultra-low sulfur diesel with a maximum sulfur content not to exceed 0.0015% by weight; and a minimum cetane index of forty (40) or maximum aromatic content of thirty-five (35) volume percent.

Reason: 40 CFR 60, Subpart IIII, and 40 CFR 63, Subpart ZZZZ, fuel requirements.

- b. The minimum stack height of the diesel engine generator shall be twenty (20) feet above ground elevation.

Reason: Carried over from the previous permit.

CONCLUSION

Recommend issuance of the renewal for the covered source permit subject to the incorporation of the significant permit conditions, thirty (30) day public comment, and forty-five (45) day EPA review.

Yishan Li
August 24, 2015